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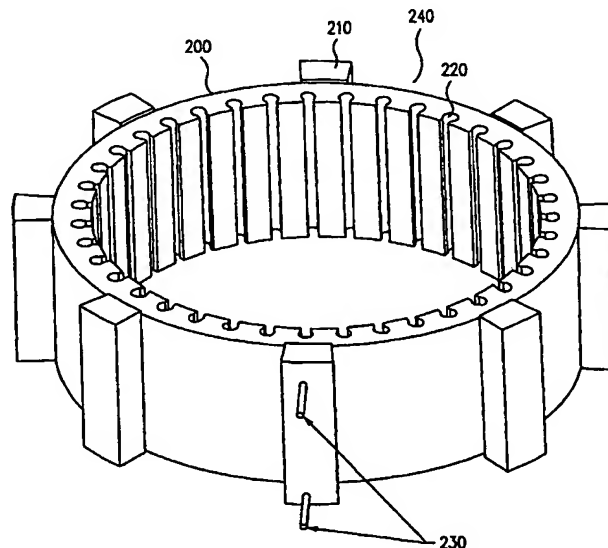
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[Continued on next page]

(54) Title: VARIABLE HEATER ELEMENT FOR LOW TO HIGH TEMPERATURE RANGES



(57) Abstract: A method and apparatus for insulating and controlling temperature in a semiconductor manufacturing environment. The invention comprises at least one modular heater element designed to be mounted about a semiconductor furnace process chamber in order to minimize thermal transfer between the furnace interior and exterior. A base ring or cylinder (200, 500, 700) also referred to as a heater ring is sized to be fitted around an inner skin of a semiconductor mini-batch furnace. The base ring (200, 500, 700) has multiple channels (220, 520) equidistantly spaced about its inner perimeter. Heating coils of a type well known in the art may nest in these channels in order to warm the furnace interior. The coils may be either removably or permanently affixed within the channels.

**Declaration under Rule 4.17:**

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